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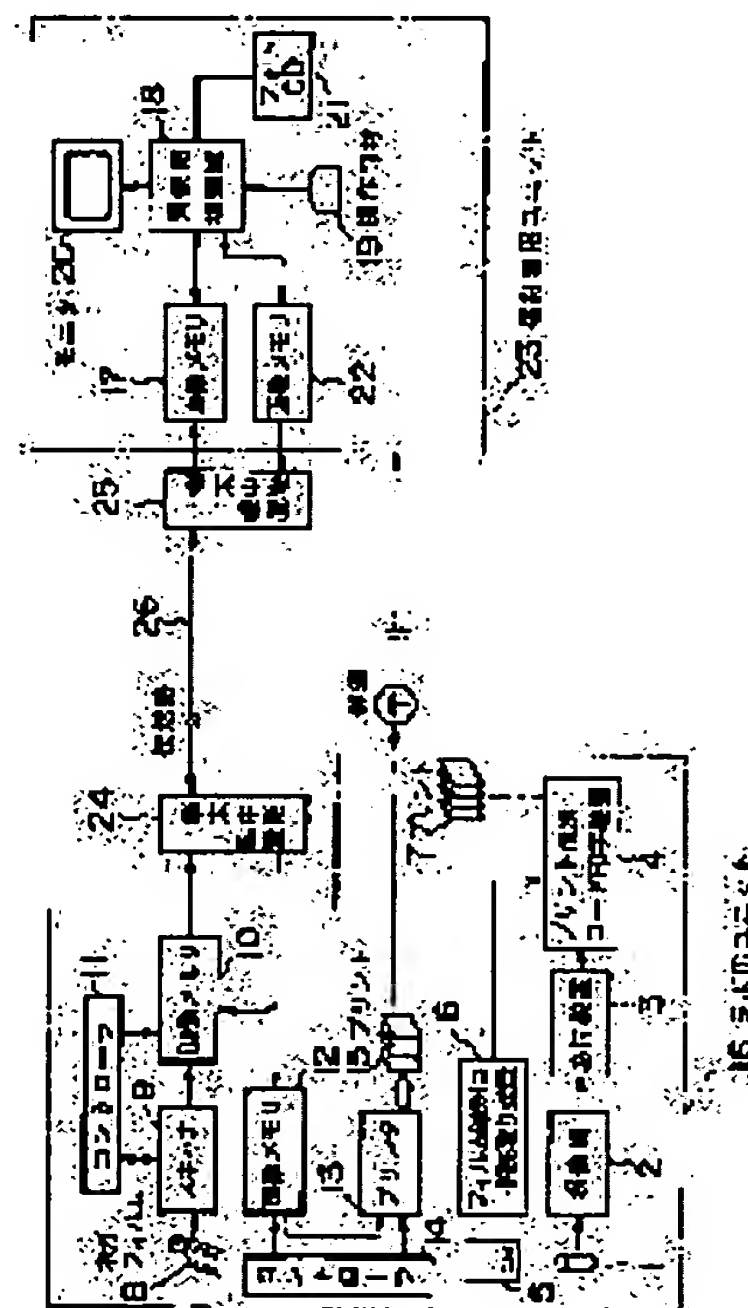
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(54) PICTURE PROCESSING SYSTEM**(57)Abstract:**

PURPOSE: To obtain a photograph intended by a photographer at a low cost by allowing the photographer himself to use a simple picture processing unit to implement trimming or density adjustment or the like, sending data to a laboratory through a communication line thereby allowing the laboratory to make printing.

CONSTITUTION: Upon the receipt of a print from a laboratory, a photographer selects a print 15 desired for synthesis or trimming and informs a print identification code to a laboratory unit 16 through a telephone line or the like. The unit 16 uses a controller 11 to select picture data corresponding to a print identification code among a picture memory 10 and gives data to a picture memory 17 of a photographer unit 23. The photographer obtaining desired picture data makes processing such as synthesis, trimming, color balance and density correction based on a picture processing unit 18. Then picture processed data are stored in the picture memory 22, sent to the unit 16 via a transmission line 26 and stored in the picture memory 12. The picture data in the memory 12 are printed out by a printer 13 and given to the photographer by mail.

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CLAIMS

[Claim(s)]

[Claim 1] A means to read the identification code of a film, and the scanner which reads the image of the above-mentioned film and is changed into digital image data, The image memory which the above-mentioned image data and the identification code of a film are made to correspond, and memorizes the above-mentioned image data, The means for recording the identification code corresponding to the above-mentioned film on a print, A means to choose the 1st image data corresponding to print identification code from the above-mentioned image memories, The image processing system characterized by providing a transmission means to transmit the 1st image data of the above, the image-processing means which carries out the image processing of the 1st image data of the above, a transmission means to transmit the 2nd image data processed with the above-mentioned image-processing means, and a means to print the 2nd image data of the above.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the image processing system which can acquire easily the photograph as intentions of a photography person, such as trimming, composition, and concentration adjustment, about an image processing system.

[0002]

[Description of the Prior Art] Generally, the equipment which acquires simply the photograph as intentions of a photography person, such as trimming, composition, and concentration adjustment, at the time of photography is known. For example, the trimming information recorded on record media, such as a photographic film, is read, a print system is set to a trimming print condition according to this trimming information, a trimming condition is displayed by this on a monitor by JP,3-153228,A, and the equipment with which trimming judges whether it is fitness is indicated.

[0003] Moreover, the equipment which defines printing light exposure according to the light quality which specified the light quality of the photographic subject illumination light, and was specified from the information which shows the existence of photography days-and-months time of day, a photography light value, and the stroboscope use at the time of photography, and bakes a film image on printing paper is indicated by JP,3-153229,A.

[0004]

[Problem(s) to be Solved by the Invention] However, it is very troublesome to write in trimming information with the equipment by above-mentioned JP,3-153228,A at the time of photography. In addition, equipment was also a thing contrary to the flow of the camera which will become large-scale and is attaining small lightweight-ization.

[0005] Moreover, even if it makes it the equipment by JP,3-153229,A, in the recording device's becoming large-scale, the parameter which determines light quality was complicated, and it was what cannot necessarily acquire a high precision. Moreover, since liking of a photography person differed delicately even if it is able to specify concentration etc. correctly, it was difficult to obtain the image which all photography persons meant.

[0006] This invention was made in view of the above-mentioned technical problem, and aims at offering the image processing system which can acquire easily the photograph which carried out trimming, concentration adjustment, etc. as the intention of a photography person.

[0007]

- [Means for Solving the Problem] Namely, the scanner which this invention reads a means to read the identification code of a film, and the image of the above-mentioned film, and is changed into digital image data, The image memory which the above-mentioned image data and the identification code of a film are made to correspond, and memorizes the above-mentioned image data, The means for recording the identification code corresponding to the above-mentioned film on a print, A means to choose the 1st image data corresponding to print identification code from the above-mentioned image memories, It is characterized by providing a transmission means to transmit the 1st image data of the above, the image-processing means which carries out the image processing of the 1st image data of the above, a transmission means to transmit the 2nd image data processed with the above-mentioned image-processing means, and a means to print the 2nd image data of the above.

[0008]

[Function] The image processing system of this invention is for providing without covering [between the lab

equipped with the developing machine, the printer, and the scanner, and the photography persons having the image processing system which performs image processings, such as trimming composition,] the photograph of an epilogue and a photography person at will for the big cost burden to a photography person in the transmission line of an optical fiber etc. First, if a photography person sends his own IC card and a film [finishing / photography] to a lab, the code for identifying this film will be registered. The code corresponding to the identification code of the above-mentioned film is recorded on the done print. In the lab, read the data of the above-mentioned film with a scanner to coincidence, change into digital image data, the identification code of the above-mentioned film is made to correspond, and the above-mentioned digital image data is memorized in memory. On the other hand, a photography person chooses the print which is going to perform trimming composition etc. from the received prints, chooses the image data corresponding to this print from the image memories of a lab through a transmission line, and receives through a transmission line. As for the image data by which reception was carried out [above-mentioned], image processings, such as composition, are performed between trimming or other images. After being again transmitted to a lab through a transmission line and printing the image data by which the image processing was carried out by the printer, it is sent to a photography person.

[0009]

[Example] Hereafter, the example of this invention is explained with reference to a drawing. Drawing 1 is the block diagram showing the whole image processing system of this invention. In this drawing, it is a film taken a photograph, this film 1 taken a photograph is developed with a developing machine 2, and after 1 is baked on printing paper with printing equipment 3, it is sent to the print discernment printer 4. Moreover, the film identification code recorded on the film storage bag 5 is read by the film identification code reader 6. In addition, 7 is a print photograph.

— [0010] Moreover, 8 is the developed film, and the image data of this developed film 8 is read with a scanner 9, and is changed into digital image data. This digital image data is memorized in an image memory 10. This image memory 10 and scanner 9 are controlled by the controller 11.

[0011] 12 is an image memory which memorizes the digital image data [finishing / an image processing] sent from the photography person side who mentions later. The image data of this image memory 12 is printed by the printer 13. The mutual timing of the above-mentioned image memory 12 and a printer 13 is controlled by the controller 14. Furthermore, 15 is the printed photograph.

[0012] Each component described above is the basic configuration which the unit 16 for labs owns. Next, the basic configuration of the unit 23 for photography persons is explained.

[0013] 17 is an image memory which memorizes the image data supplied from the unit 16 for labs according to the demand of a photography person. And an image processing system 18 is supplied, an image processing is made by the operating member (a mouse and keyboard) 19, and the image data memorized in this image memory 17 is displayed on a monitor 20. In addition, 21 is photo CD equipment with which the image data for carrying out image composition is memorized, and 22 is an image memory which memorizes the image data processed with the image processing system 18.

[0014] Moreover, 24 and 25 are the terminal repeating installation of a transmission line 26. Here, before explaining actuation of the image processing system of drawing 1, drawing 2 is used and explained about a film identification code reader.

[0015] As shown in drawing 2 (a), the magnetic tape 28 is stuck on the film storage bag 27. On the other hand, the photography person holds IC card 29, and as shown in drawing 2 R> 2 (b), it has CPU, program memory, the data storage section, etc. Thereby, different serial code data for every one film with which this IC card 29 requests the development of a film from a photography person's ID code and a lab are memorized.

[0016] The above-mentioned ID code and a serial code are recorded on the magnetic tape 28 of the film storage bag 27 by the magnetic recording medium 31 through the reader & writer 30. The increment of the serial code of IC card 29 is carried out to coincidence by the reader & writer 30.

[0017] New film identification code is always matched with a film by the above. Next, actuation of the image processing system of drawing 1 is explained. Film identification code is read in the recorded film storage bag by the reader 6. On the other hand, a print 15 is made by the equipment 3 with afterbaking with which the film was developed by the developing machine 2. In the rear face of a print 15, print identification code as shown in drawing 3 (a) is printed by the print identification code printer 4. This print identification code is recorded as a code in which the read piece number was compounded by the bar code as indicated to be the above-mentioned

film identification code to drawing 3 (b). The done print 7 is sent to a photography person by mailing or personal delivery.

[0018] A developed film 8 is changed into digital image data by the scanner 9, and is memorized in an image memory 10. Drawing 3 (c) shows the data configuration of image data. In this drawing, top film identification code is a synthetic code in the serial code which corresponded for every the above-mentioned photography person's ID code, and one film. A piece number is the code which corresponded for every piece of a film. This is recorded by detecting a piece number information bar code as shown in drawing 3 (b). Furthermore, image data is image data corresponding to each piece.

[0019] On the other hand, if a print is received from a lab (unit 16 for labs), a photography person will choose the print 15 to compound or trim, and will request from a lab the print identification code currently displayed on the print rear face by the telephone line etc. The lab which received the request chooses the image data corresponding to the print identification code requested out of the image memory 10 from image memories 10 by the controller 11, and supplies it to the image memory 17 of the unit 23 for photography persons which a photography person possesses through the terminal repeating installation 24, a transmission line 26, and the terminal repeating installation 25.

[0020] Drawing 4 is what showed the data configuration transmitted, and (a) is a data configuration sent towards the unit 23 for photography persons from the unit 16 for labs. The photography person who got desired image data performs amendment of composition, trimming, a color-balance, or concentration based on an image processing system 18. Then, an image memory 22 is made to memorize image-processing finishing data, and through the terminal repeating installation 25, a transmission line 26, and the terminal repeating installation 24, it is sent to the unit 16 for labs, and memorizes in an image memory 12.

[0021] Drawing 4 (b) shows the configuration of the image data sent to the unit 16 for labs from the unit 23 for photography persons. Print processing of the image data of an image memory 12 is carried out by the printer 13. The photograph printed here is passed to a photography person by mailing or personal delivery.

[0022] Drawing 5 shows the detailed configuration of the scanner 9 of drawing 1. In drawing 5, the white light of the light source 32 passes along the film 8 and lens 36 which are supplied with the diffusion plate 33 and the film feed roller 35 in a tape carrier package 34, and is led to the 1-dimensional color line sensor 37. Image formation of the image of a film 8 is carried out to the 1-dimensional color line sensor 37 with a lens 36. The output signal of this 1-dimensional color line sensor 37 is changed into digital quantity by A/D converter 39 through an amplifying circuit 38. And it memorizes through I/O Port 40 and a controller 11 in an image memory 10 further. A controller 11 is for controlling the image data flow between an image memory 11 and I/O Port 40.

[0023] The sensor 42 for film piece number bar code detection formed near the above-mentioned tape carrier package 34 detects the piece number information bar code on a film 8, as shown in drawing 3 (b). The data of the piece number information bar code detected here are supplied to a controller 41 through I/O Port 40. Moreover, film identification code is read in the film identification code reader 43. By the controller 11, these films identification code, a piece number, and image data are data configurations as shown in drawing 3 (c), and are memorized in an image memory 10.

[0024] Drawing 6 shows the example of a configuration of communication system. multiplexer 441 from -- the data outputted -- terminal repeater equipment 451, a fiber optic cable 46, repeating installation 471, and 472 etc. -- minding -- terminal repeater equipment 452 from -- multiplexer 442 It is supplied.

[0025] Drawing 7 (a) and (b) are terminal repeater equipment 451 of the transmitting side of the communication system of drawing 6, and a receiving side. And 452 It is the block diagram having shown the configuration. In drawing 7 (a), the digital signal outputted from the multiplex inverter 48 is changed into the transmitting sign which reached optical communication by amphipathy / unipolar converter 49, and the transmitting sign treater 50. And LD (laser diode)53 drives by the drive circuit 51 and the output-level control circuit 52. The lightwave signal of LD output spreads a fiber optic cable 46 top through the optical multiplexing splitter 54, and goes into a repeater.

[0026] On the other hand, it is terminal repeater equipment 452 of a receiving side. It is constituted as shown in drawing 7 R> 7 (b). That is, the lightwave signal supplied through the fiber optic cable 46 and the optical multiplexing splitter 55 is changed into an electrical signal by APD (Analanche Photo Diode)56. The digital signal changed into the electrical signal is changed into an input signal by the receiving sign treater 61 through an automatic gain control circuit 57, the identification amplifying circuit 58, a timing circuit 59, and the

discernment regenerative circuit 60, is further changed into the original signal by the unipolar / amphipathy converter 62, and is supplied to the multiplex inverter 63.

[0027] In a repeater, a lightwave signal is changed into an electrical signal by APD. And the same regeneration processing as the repeater for the usual digital transmissions is made, and the digital signal changed into the electrical signal drives LD now again, and is sent in an optical fiber as a lightwave signal.

[0028] In the example mentioned above, although the image data of the film by the side of a lab was memorized as digital image data to the image memory, film identification code and a film which were described above may be well arranged so that correspondence relation with the print currently crossed to the photography person side may be known. In this case, a desired film piece will be read with a scanner for the first time since the transmitting request of image data is received from a photography person side.

[0029]

[Effect of the Invention] Since the photography person itself performs composition, trimming, color-balance adjustment, and concentration adjustment with an easy image processing system and a delivery print is carried out for image data to a lab using a digital-communication circuit according to this invention as mentioned above, the print as an intention of a photography person can be obtained. Moreover, since the photography person itself does not need to possess expensive systems, such as a scanner printer, the photograph as an intention can be gained at cheap cost.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the whole image processing system of this invention.

[Drawing 2] It is drawing having shown the film identification code reader of drawing 1 .

[Drawing 3] Drawing in which (a) showed the example of print identification code, drawing having shown the example of the piece number information bar code by which (b) was attached on the film, and (c) are drawings having shown the data configuration of image data.

[Drawing 4] It is what showed the data configuration transmitted, and drawing having shown the data configuration to which (a) is sent towards the unit 23 for photography persons from the unit 16 for labs, and (b) are drawings having shown the configuration of the image data sent to the unit 16 for labs from the unit 23 for photography persons.

[Drawing 5] It is drawing having shown the detailed configuration of the scanner 9 of drawing 1 .

[Drawing 6] It is the block diagram having shown the example of a configuration of communication system.

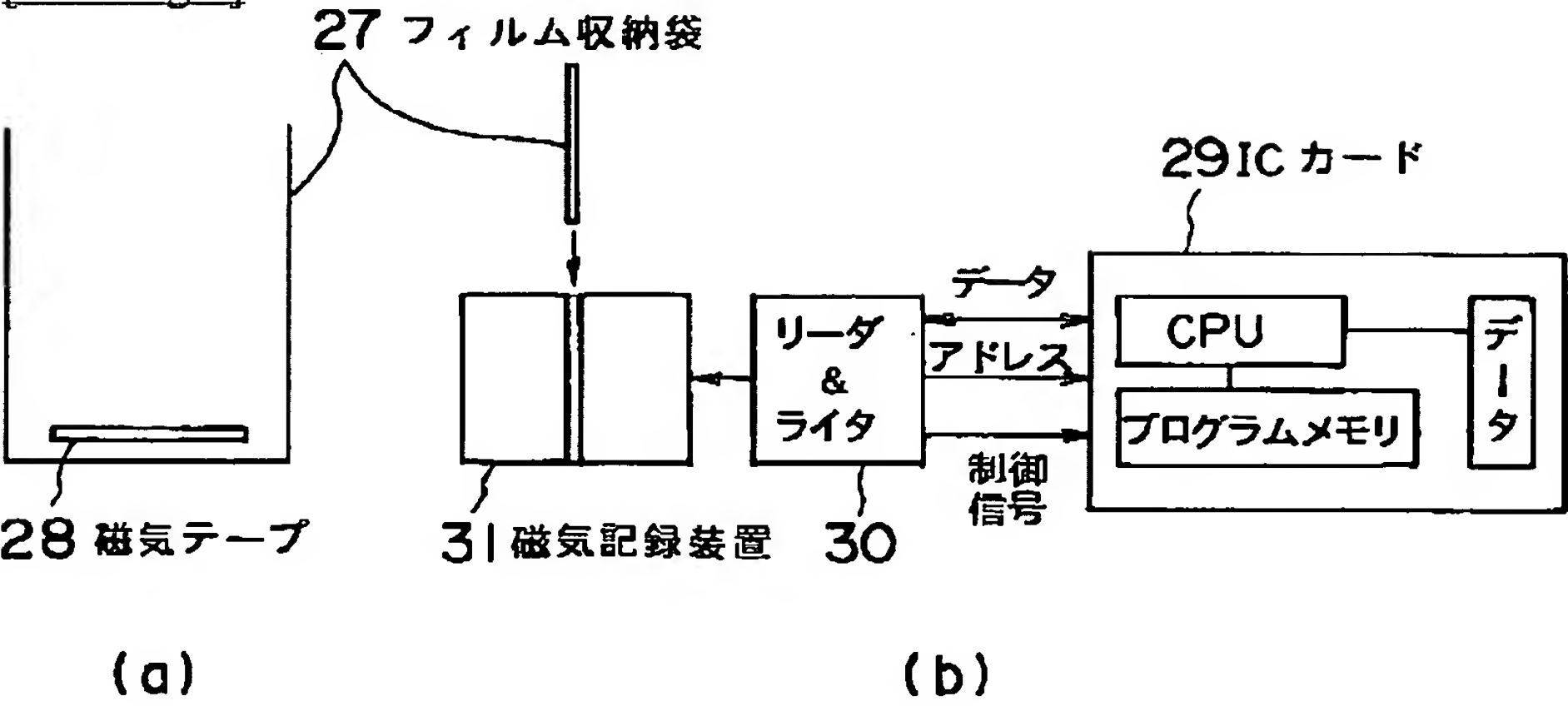
[Drawing 7] (a) And (b) is terminal repeater equipment 451 of the transmitting side of the communication system of drawing 6 , and a receiving side. And 452 It is the block diagram having shown the configuration.

[Description of Notations]

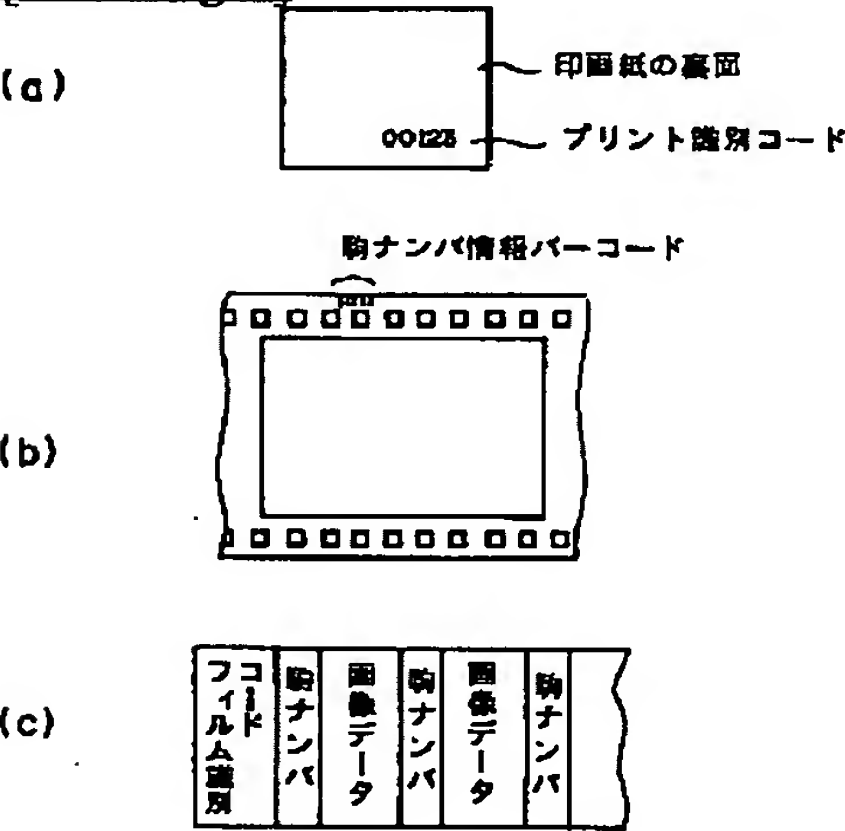
1 [-- Print discernment printer,] -- The film taken a photograph, 2 -- A developing machine, 3 -- Printing equipment, 4 5 -- A film storage bag, 6 -- A film identification code reader, 7 -- Print photograph, 8 -- A developed film, 9 -- A scanner, 10, 12, 17, 22 -- Image memory, 11 14 [-- The unit for labs, 18 / -- An image processing system, 19 / -- An operating member, 20 / -- A monitor, 21 / -- Photo CD equipment, 23 / -- 24 The unit for photography persons, 25 / -- Terminal repeating installation, 26 / -- Transmission line.] -- A controller, 13 -- A printer, 15 -- The photograph, 16 which were printed

[Translation done.]

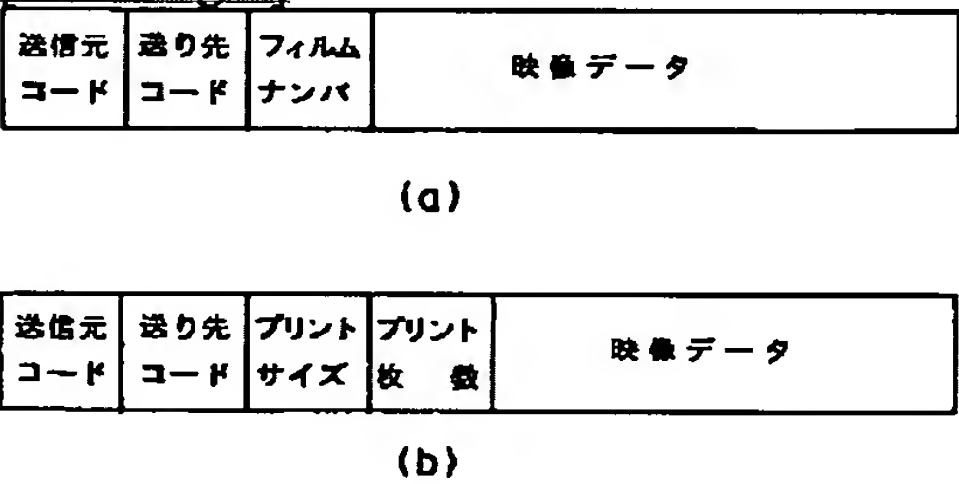
[Drawing 2]



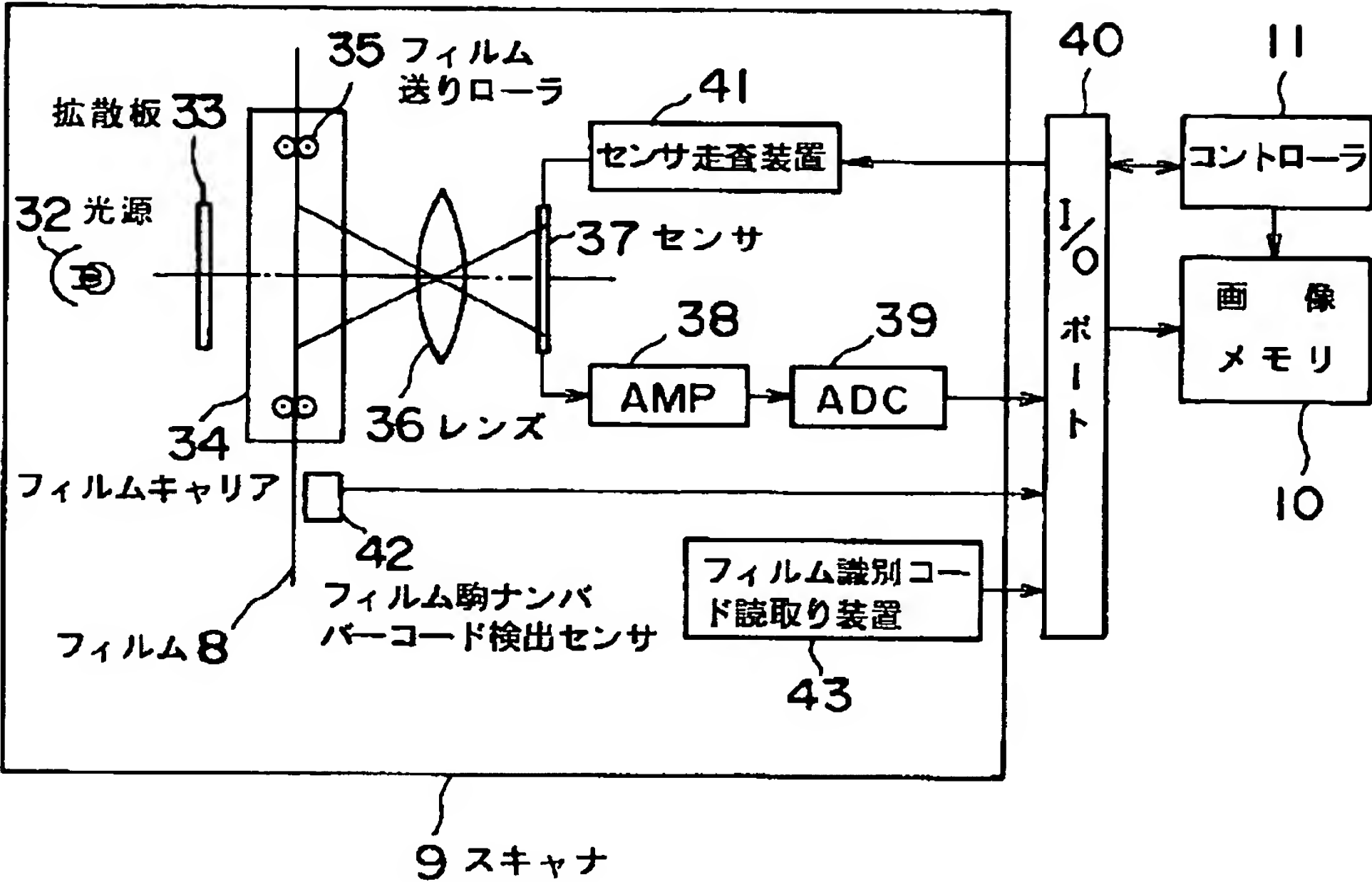
[Drawing 3]



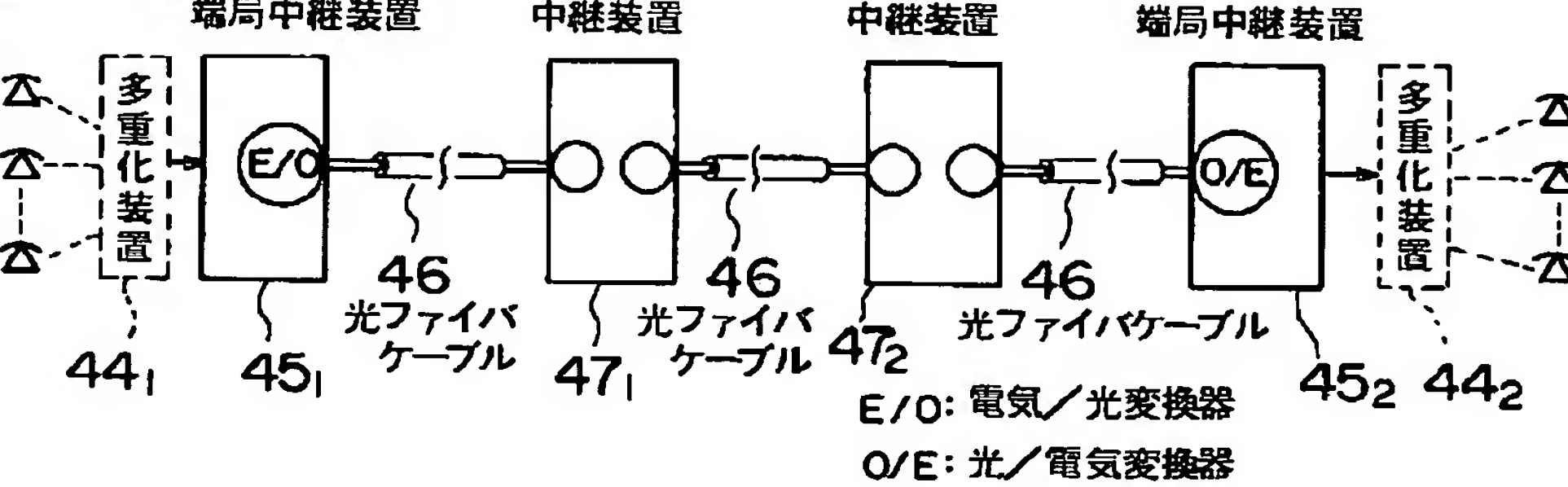
[Drawing 4]



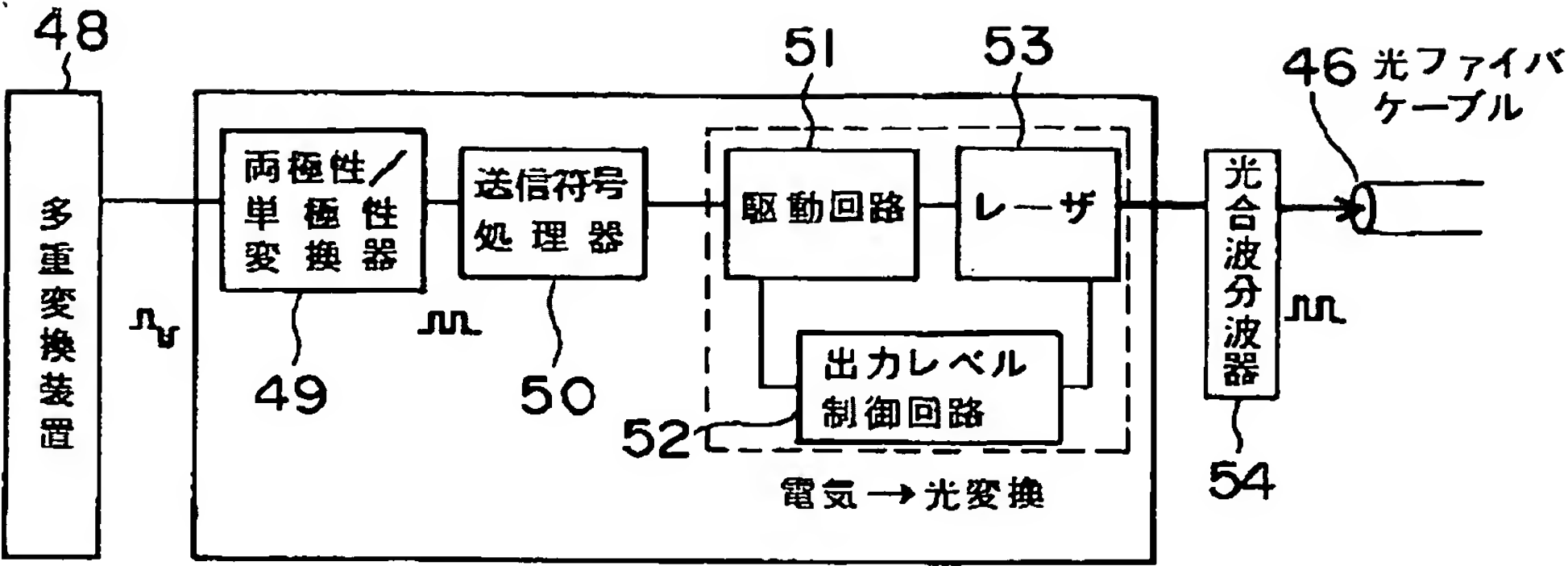
[Drawing 5]



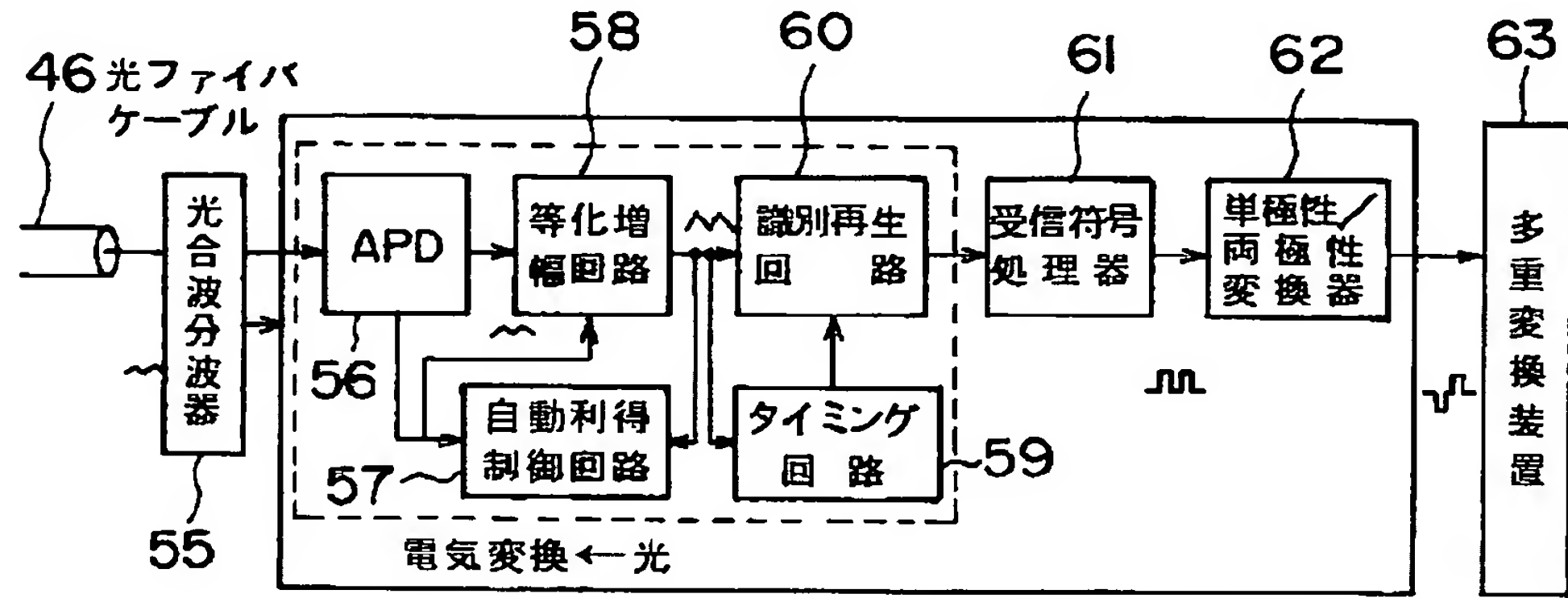
[Drawing 6]



[Drawing 7]



(a)



(b)

[Translation done.]